45TH CONGRESS, 3d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 44.

SURVEY OF MISSOURI RIVER AT CEDAR CITY, MISSOURI.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING

Survey of Missouri River at Cedar City, Missouri.

JANUARY 31, 1879.—Referred to the Committee on Commerce and ordered to be printed.

WAR DEPARTMENT,
Washington City, January 29, 1879.

The Secretary of War has the honor to transmit to the House of Representatives, in compliance with section 2 of the river and harbor act of June 18, 1878, copy of report of Maj. C. R. Suter, Corps of Engineers, upon the survey of the Missouri River at Cedar City, Missouri, with letter of the Chief of Engineers submitting the same.

GEO. W. McCRARY,
Secretary of War.

The SPEAKER
Of the House of Representatives.

OFFICE OF THE CHIEF OF ENGINEERS,
Washington, D. C., January 28, 1879.

SIR: To comply with the requirements of the second section of the river and harbor act of June 18, 1878, I have the honor to submit herewith a copy of the report of Maj. C. R. Suter, Corps of Engineers, upon the survey of the Missouri River at Cedar City, in Callaway County, Missouri, with estimates of the cost of improvements proper to be made.

Very respectfully, your obedient servant,

A. A. HUMPHREYS,
Brigadier-General and Chief of Engineers.

Hon. GEO. W. McCRARY,
Secretary of War.

SURVEY OF THE MISSOURI RIVER AT CEDAR CITY, MISSOURI.

UNITED STATES ENGINEER OFFICE,
Saint Louis, Mo., January 18, 1878.

GENERAL: I beg leave to submit, herewith, a copy of a report by my assistant, Capt. Thos. H. Handbury, Corps of Engineers, U. S. A., upon the Missouri River in the vicinity of Cedar City, Mo.

I beg to refer to this report and accompanying map for a description of the locality and the damage which has resulted from the erosion of the banks, as also for the details of the plan of improvement projected. It is proposed to attempt the rectification of the river in this vicinity by a system of floating brush dikes, the exposed banks being protected by a revetment of brush mattresses, as used with success at other points along the river. The estimate for the whole work is $70,000, and the whole sum should be appropriated at once, in order to avoid delays in carrying the work to completion.

I am, general, very respectfully, your obedient servant,

CHAS. R. SUTER,
Major of Engineers.

Brig. Gen. A. A. HUMPHREYS,
Chief of Engineers U. S. A.

REPORT OF CAPT. THOMAS H. HANDBURY, CORPS OF ENGINEERS.

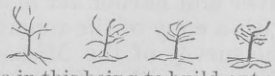
UNITED STATES ENGINEER OFFICE,
Saint Louis, Mo., January 18, 1879.

MAJOR: I have the honor to submit the following project, prepared in obedience to your instructions, received a few days since, for the improvement of the navigation of the Missouri River and for the protection of property from the incursions of the river in the vicinity of Cedar City, Mo.

For the purpose of placing in as clear a light as possible what I have to say in regard to this locality and the project I shall propose, I submit herewith a tracing of a map of this portion of the Missouri River, the original of which on a large scale, together with a report, was recently submitted to you by your assistant, D. W. Wellman. From this map and report we have the means of comparing in its general features the condition of the river as it was some years since and as it exists at the present time.

We see that as late as 1861 the river passed in an almost straight course along the foot of the bluffs which form its right bank. Its left bank at that time was nearly parallel to this. For some reason which it is not necessary now to consider, the channel in the upper part of the reach, represented upon the map, began to wear away the left bank. This caused the bed of the river to move down, filling in on the right bank as the left was worn away. This process soon changed the direction of the current and brought it against a point of rocks which is on the right bank of the river about 3 miles above Jefferson City. From here, instead of pursuing its old course down along the edge of the bluffs, it was deflected back to the left bank with such force as to cause rapid erosion, which resulted in the formation of a bend about a mile above Cedar City. As time progressed the erosion went on, and the point of impact in this bend moved rapidly down, threatening the entire town with destruction. To prevent this calamity the citizens of the town and county exerted themselves to the extent of their means.

In 1875 they built out in the position marked thus upon the map a floating brush dike, made by taking trees as large as could be handled with a derrick and loaded upon a flatboat and anchoring them close together; the idea in this being to build out a bar from the left bank and deflect the current so as to get it out of the bend. Unfortunately their means were limited, and they were obliged to cease the good work before they had carried it sufficiently far to accomplish their object. The result was that a bar followed the dike out as they had anticipated, but the point of impact in the bend was moved down to somewhere in the neighborhood of the mouth of Cedar Creek. Here the citizens again exerted themselves, and built in 1876 a riprap of stone and



brush, which, after giving away two or three times and being as often repaired, is now holding the bank at this point.

Now, what is needed in this locality is to relieve the left bank of the river here of the current entirely and get it back to the bluff on the other side. We can scarcely expect, under existing circumstances, to get the river back throughout this entire extent to where it was before, but we can, I think, without difficulty relieve the left bank of the current, fill up the bend above Cedar City again, and provide for the maintenance of a good steamboat landing at Jefferson City. This I would propose to do by rectifying the shore into some such a shape as that indicated by the line marked thus .... upon the map.

At the upper end of the reach between A and B I would allow the erosion to go until the shore assumed about the shape indicated by the dotted line between these two points; then I would hold it there by a revetment. While the erosion is taking place here, I would prevent it between B and C by revetting. This would cause the current to impinge against the right bank higher up than it now does, and, as a consequence, give it a direction from there more nearly parallel to the bluff. From D to E I would propose a continuous revetment, so as to hold all this portion of the shore. In addition, to keep the current away from this shore, and at the same time to crowd the channel over toward the right bank by building out the left, I would use a series of dikes, somewhat as indicated upon the map. Somewhere in the vicinity of E I would place a dike, with a view of throwing the current from here over to the right bank, so as to give this portion of Jefferson City a good steamboat landing at all stages of the river. These revetments and dikes I would construct of brush, as indicated in my project for the improvement of the Missouri River at Glasgow, submitted to you on the 16th instant.

The estimate I make for this work is as follows:

For 20,000 feet of brush revetment, at $2.25 per foot	$45,000
For 15,000 feet floating brush dike, at $1 per foot	15,000
Contingencies and superintendence	10,000
Total	70,000

Respectfully submitted.

THOS. H. HANDBURY,
Captain Corps of Engineers, U. S. A.

Maj. C. R. SUTER,
Corps of Engineers, U. S. A.